D Microeconomics

Analytical Politics. By Melvin J. Hinich and Michael C. Munger. Cambridge; New York, and Melbourne: Cambridge University Press, 1997. Pp. xii, 253. $59.95, cloth; $21.95, pbk. ISBN 0–521–56287–2, cloth; 0–521–56567–7, pbk. *JEL 98–0065*

Mathematical models of political processes have become increasingly sophisticated over the last few decades, with the lessons drawn from such models generating insights relevant for both political scientists and economists. In *Analytical Politics,* Professors Hinich and Munger present some of the primary building blocks of these models, show how they fit together, and describe some of the more fundamental conclusions established to date. The material is pitched to an audience of graduate and advanced undergraduate students in political science and economics (exercises are provided), as well as to scholars unfamiliar with the terrain. Most of the formal results are stated without proof, and no new results are presented.

The book begins with a fairly detailed look at the basic spatial model of politics: a set of policies equal to d-dimensional Euclidean space, and a set of n individuals each in possession of a well-behaved utility function over policies. The two principal questions with which the theory is concerned are (1) When is the set of majority rule core policies (i.e., those against which no other policy can command a majority) non-empty? and (2) Where is this set located in the policy space? Answers to these questions are relevant for collective policymaking "in the small" where the n individuals constitute a committee that must directly decide on a policy, as well as "in the large" where candidates or parties propose policies subsequently voted on by the individuals: under certain additional assumptions core policies constitute equilibrium outcomes of both processes.

As the authors demonstrate in chapters 2 and 3, the answer to (1) depends critically on d, the number of dimensions in the policy space: if d equals 1 a majority rule core point exists, whereas when d is at least 2 such points can, and oftentimes do, fail to exist. In contrast, the answer to (2) is independent of d, and reduces to the familiar Median Voter Theorem when d happens to equal 1. In particular, the core is located in the "center" (in a certain sense) of the distribution of voters' ideal policies, and so "the center is the focus of political power" (p. 133). Yet the absence of such a "center" in multidimensional models is viewed as a serious impediment to collective decision making, especially in conjunction with the Chaos Theorem (presented somewhat unfortunately only in chapter 8) which states that without a core one can get from any policy to any other (and back again) via the majority preference relation. Hence the authors' pessimistic conclusion: in two or more dimensions "there is not necessarily a 'middle' that we can depend on to lend stability to democracy: majority rule processes can be arbitrary" (p. 63). In this judgment the authors are certainly in the majority, as can be seen by the subsequent "structure-induced equilibrium" research which rationalizes various political institutions (e.g. legislative committees) as the barricades holding back the otherwise inevitable onslaught of chaos.

An alternative perspective, though, is that these core nonexistence and chaos theorems do not predict (as it is commonly phrased) "anything can happen"; as nonequilibrium results they do not predict anything at all. Rather, what these negative results demonstrate is the impossibility of any general theory of political behavior based solely on the notion of preference aggregation under majority rule, and therefore the necessity of additional structure in order to have a well-posed equilibrium model. From this perspective, then, the lesson to be learned is one for the *modeler* of political processes, rather than one about the political processes themselves.

After presenting some technical support for the multidimensional model in chapter 4, chapter 5 presents Arrow's Impossibility Theorem as the answer to the question, "What about other methods of preference aggregation?" The negative conclusion here, that *any* method must fail to satisfy at least one otherwise desirable criterion, implies that the "bad" features of majority rule found in the earlier chapters show up in various disguises for any other method as well and so should be viewed as merely an example of the

inherent weaknesses in any collective choice process. This chapter requires a technical shift away from the spatial model and into a finite-policy world, which may cause confusion for the reader at a few junctures. For instance, the Condorcet paradox requires preferences to be non-single-peaked, and yet in the spatial model it was shown that a majority rule core could fail to exist in two dimensions "even assuming preferences are separable and single-peaked" (pp. 62–63) (i.e., single-peaked along each dimension). Hence the relation between single-peakedness in the finite and spatial model, and their relevance for the existence of majority rule core points, may be somewhat opaque.

Similarly, the authors could have stayed within the spatial framework and stated, instead of Arrow, nonexistence results for a broad class of aggregation rules (cf, N. Schofield "Social Equilibrium and Cycles on Compact Sets," *Journal of Economic Theory* (1984) 33:59–71). Indeed, since the authors examine in some detail the properties of supermajority or q-rules as alternatives to majority rule, they missed an opportunity to show how cleanly the parameters q and d get translated into determining when the core of a q-rule will be non-empty and how the above results for majority rule drop out as a special case. Admittedly, however, Arrow's Theorem is an irresistible and well-known target, and so *not* including it would have surely imposed a different but no-less-substantial cost.

The next two chapters consider various extensions of the basic model. Chapter 6 takes the electoral (as opposed to committee) perspective and allows for candidate uncertainty over voter preferences, voter uncertainty over candidate positions, and candidates with policy preferences. All of this is accomplished in the one-dimensional model, and so at issue is the convergence of candidate policies toward the "center," with the conclusion being that such convergence is fairly robust. Chapter 7 looks at the incentives of voters to abstain from voting (due to costs, indifference, etc.), with one of the main results being that as n gets arbitrarily large, the equilibrium number of individuals who vote tends to zero.

Finally, the last two chapters provide a brief tour of some recent advances, where in contrast to the two previous chapters these are not presented as "add-ons" to the basic theory but rather as more substantial changes. Chapter 8 looks at the possibility of strategic voting and states the Gibbard-Satterthwaite Theorem (both in the finite world), examines the effects of nonseparable preferences on agenda manipulation in the multidimensional model, and presents the probabilistic model of voter behavior. Chapter 9 describes a "directional" theory of voting, as well as the authors' own ideology-based theory.

Professors Hinich and Munger are to be commended for presenting at a not-too-technical level many of the key insights and quandaries underlying much of what is formal political theory. Further, the use of numerous verbal and visual examples of the concepts and conclusions helps to sustain a desirable level of reader friendliness. Upon absorbing the book's message students and others will no doubt be inspired to delve deeper into these sometimes murky theoretical waters.

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The intergenerational transmission of economic status within families affects the evolution of economic inequalities and the ways in which governmental policies might alter the extent of inequalities. Both descriptive and policy questions relate to this process. Will African Americans ever be as rich as European Americans? If so, how soon? What are the effects of educational, inheritance, and other tax policies and welfare programs on the intergenerational transmission of economic status?

A theory of the role of families in the intergenerational transmission of inequalities is necessary to guide empirical interpretations related to such questions. This interesting and provocative book addresses this topic, with arguments organized into four parts,